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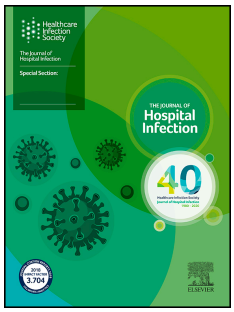

Preparing nurses for COVID-19 response efforts through involvement in antimicrobial stewardship programmes

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Title: Preparing nurses for COVID-19 response efforts through involvement in antimicrobial stewardship programmes

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Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) continues to spread internationally with 5 593 631 cases reported globally including 353 334 deaths [1]**.** Its rapid emergence and dissemination have highlighted multiple areas in which competencies in antimicrobial stewardship (AMS) (the safe and effective use of antimicrobials), specifically by nurses, can support response efforts. There have been calls for nurses to be recognised as legitimate contributors to AMS team efforts [2-5].Unfortunately, nurse's role in these efforts, have received minimal mention in international and national policy [4,6,7,8,9,10]. It is reported that nurses' knowledge of antibiotics is poor [11, 12], and that AMS taught in nurse undergraduate programmes is disparate or lacking [13]. To address this gap, AMS consensus based international competency statements have been developed, focussed on six domains (Infection prevention and control, antimicrobials and antimicrobial resistance, the diagnosis of infection and use of antibiotics, antimicrobial prescribing practice, person centred care, interprofessional collaborative practice), which are (seen as) priorities/ minimum requirements for nurses [14,15].

Nurses are often the first healthcare workers to come into contact with patients infected by SARS-CoV-2, and so need to be alert to its signs and symptoms in order to ensure prompt implementation of additional precautions to stop transmission [16]. Differentiating between viral and bacterial

pneumonia can be challenging [17] and so awareness of how these symptoms differ is crucial. This awareness is central to reducing unnecessary prescriptions of not just antibiotics, as COVID-19 is caused by a virus, but other anti-infective drugs associated with AMS such as anti-fungal and anti-viral medications. AMS requires nurses to be able to distinguish between symptoms and ask questions about the use of antibiotics should symptoms be more consistent with a viral infection, or when microbiology results do not indicate a bacterial cause [14]. Such actions will help to ensure that antimicrobial resistance is not an unintended consequence of COVID-19.

Myths about COVID-19 circulated through social media and disreputable websites, the plethora of ever-evolving data and information, and the guidance on COVID-19 prevention presented daily, have made it difficult for the public to understand how the infection is transmitted and if antibiotics are necessary. Increasingly, the importance of engaging with patients and involving them in decision making to optimise AMS efforts, has become recognised [14]. Nurses, with their focus on patient centred care, are in an excellent position to engage with the public and communicate messages about interrupting the spread of infection and the appropriate use of antimicrobials, including the importance of prudent use for patients who really need them.

It is also important to recognise nurses' engagement through interprofessional collaboration, which involves nurses and other health professionals from various disciplines working together with shared goals, mutual trust, respect, and understanding about each other's roles, along with acceptance that patients are team members [18,19]. There is an association between interprofessional collaboration and patient safety [20,21]. In AMS, interprofessional collaboration requires shared understanding about antimicrobial treatment decisions and plans, and about the expected outcomes of antimicrobial therapy [14].

Infection prevention and control quality assurance frameworks [22] highlight that arrangements around AMS should be maintained during the COVID-19 pandemic, however, the outbreak of SARS-CoV-2 presents enormous challenges for AMS and for teamwork and interprofessional collaboration [23]. Traditional AMS teams may have fallen apart during the pandemic, through repurposing of staff and the impact on microbiology services of supporting the COVID-19 workload. Furthermore, the rapid emergence and dissemination of COVID-19 has resulted in reconfiguration of healthcare services, redeployment of healthcare workers into areas where they may have less expertise, and employment of retired practitioners who have less experience of

antibiotic stewardship. This reshaping of interprofessional relations, with the addition of different professionals, with various professional backgrounds and experiences, potentially dilutes existing team cohesions, and could affect discussions and decisions about antimicrobial prescribing. Nurses are pivotal as leaders and influencers and this pandemic throws a spotlight on their communication and coordination of holistic patient care, clinical practice and facilitation of interprofessional collaboration. Nurses, however, may lack confidence in this endeavour; with the reshaping of healthcare teams increasing uncertainty and the need for clinical and professional supervision to overcome challenges. Applying AMS competencies will help nurses to consolidate their appreciation of interprofessional collaboration, and its contribution to AMS, and empower them to enact their AMS role, which in turn would enable sustainability of AMS activities during challenging times [14]. In applying AMS competencies, nurses will know the prerequisites for meaningful collaboration, including effective communication, negotiation and assertiveness skills [5,24,25]. Consequently, they are in a better position to confidently discuss antimicrobial-related issues with various health professionals, such as a switch from intravenous to oral therapy, and would recognise when specific communication techniques and tools are needed to convey and act on critical messages [24,26]. Building competence to practise collaboratively enables nurses to be active participants in AMS policy decisions, and involves nurses taking advantage of opportunities to discuss antimicrobial treatment decisions and management plans with their colleagues, patients, and carers. Through the application of competencies [14], nurses can work deliberately to build rapport and trust amongst team members, knowing that rapport and trust are necessary for genuine interprofessional collaborative practice to happen.

COVID-19 has focused attention on nurse leaders' power and potential to promote AMS. A key AMS strategy in the current pandemic is to promote the message that antibiotics should not be prescribed for viral infections, and that these medicines must only be prescribed for those for whom serious bacterial (primary or secondary) infection is suspected. By involving nurses in AMS leadership positions, role modelling the importance of AMS behaviours, and advocating for, and supporting nurses in enacting their AMS role, a strong signal will be sent out to nurses about the importance of responsible antimicrobial management.

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